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A NEW SPECIES OF CAPRELLID ASSOCIATED WITH HYDROIDS FROM SOUTHERN JAPAN (CRUSTACEA: AMPHIPODA: CAPRELLIDAE)

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Abstract.—*Caprella glabra,* a new caprellid amphipod belonging to the *Caprella acutifrons* group, is described from Amakusa, southern Japan. The species is found in association with erect branching hydroids. Its unique pereopods 5–7 show a morphological adaptation to the hydroid substratum.

During ecological studies of a sublittoral community at Amakusa in western Kyushu, I found an unusual amphipod of the genus *Caprella* that occurs only on erect branching hydroids. This species belongs to the *Caprella acutifrons* group (see Mayer 1890, 1903) and displays some unique characters which appear to be morphological adaptations to life on the hydroid substratum. Consultation of the literature shows that it represents a new species, described below.

The type materials are deposited in the National Science Museum, Tokyo (NSMT) and the National Museum of Natural History, Smithsonian Institution, Washington, D.C. (USNM).

Caprella glabra, new species
Figs. 1–3

Type material.—Holotype, ♂, 8.7 mm (NSMT-Cr 10174); allotype, ♀, 7.0 mm (NSMT-Cr 10175); paratypes, 10 ♂, 5 ♀ (NSMT-Cr 10176); paratypes, 10 ♂, 5 ♀ (USNM 239267), on *Thecocarpus niger* Nutting, *Sargassum patens* C. Agardh bed, 3 m, Tomioka, Amakusa Island, 32°31′N, 130°02′E, 9 Apr 1988, coll. M. Aoki; paratypes, 5 ♂, 5 ♀ (NSMT-Cr 10177), on *Aglaophenia whiteleggei* Bale, 4 m, Tomioka, Amakusa Island, 32°31′N, 130°02′E, 9 Apr 1988, coll. M. Aoki.

Diagnosis.—Body surface shiny, head with acute triangular projection directed straight forward, pereonite 3 with pair of sharp anterolateral projections, antenna 2 bearing sparse short setae, basis of gnathopod 2 longer than half of pereonite 2 in males, palmar margin of propodus of pereopods 5–7 defined by high triangular proximal projection bearing grasping spines.

Description.—Male: Pereonites 2, 4, 5 and 6 smooth. No pleura on pereonites 2–4. Pereonite 7 with small triangular process on posterodorsal margin. Pereonite 5 subequal in length to pereonites 6 and 7 combined. Maximum body length, 9.0 mm.

Antenna 1 shorter than half of body; peduncle barely as long as flagellum. Antenna 2 longer than peduncle of antenna 1; peduncle sparsely bearing short, simple and plumose setae; flagellum with hooks and simple setae.

Mouthparts typical of genus, lacina mobilis of right mandible 5-toothed.

Gnathopod 1 having palmar margin of propodus smooth and setose except for serrate proximal end with pair of grasping spines; grasping margin of dactylus serrate. Gnathopod 2 arising at midlength of pereonite 2 in adult; mesial and posterior sides of whole surface covered with fine granulations; palm of propodus barely setose, with 2 processes, proximal one spiniform, distal one triangular; basis ⅝ as long as propodus, more than half length of pereonite 2, with distolateral triangular process; dactylus apex diagonally truncate.

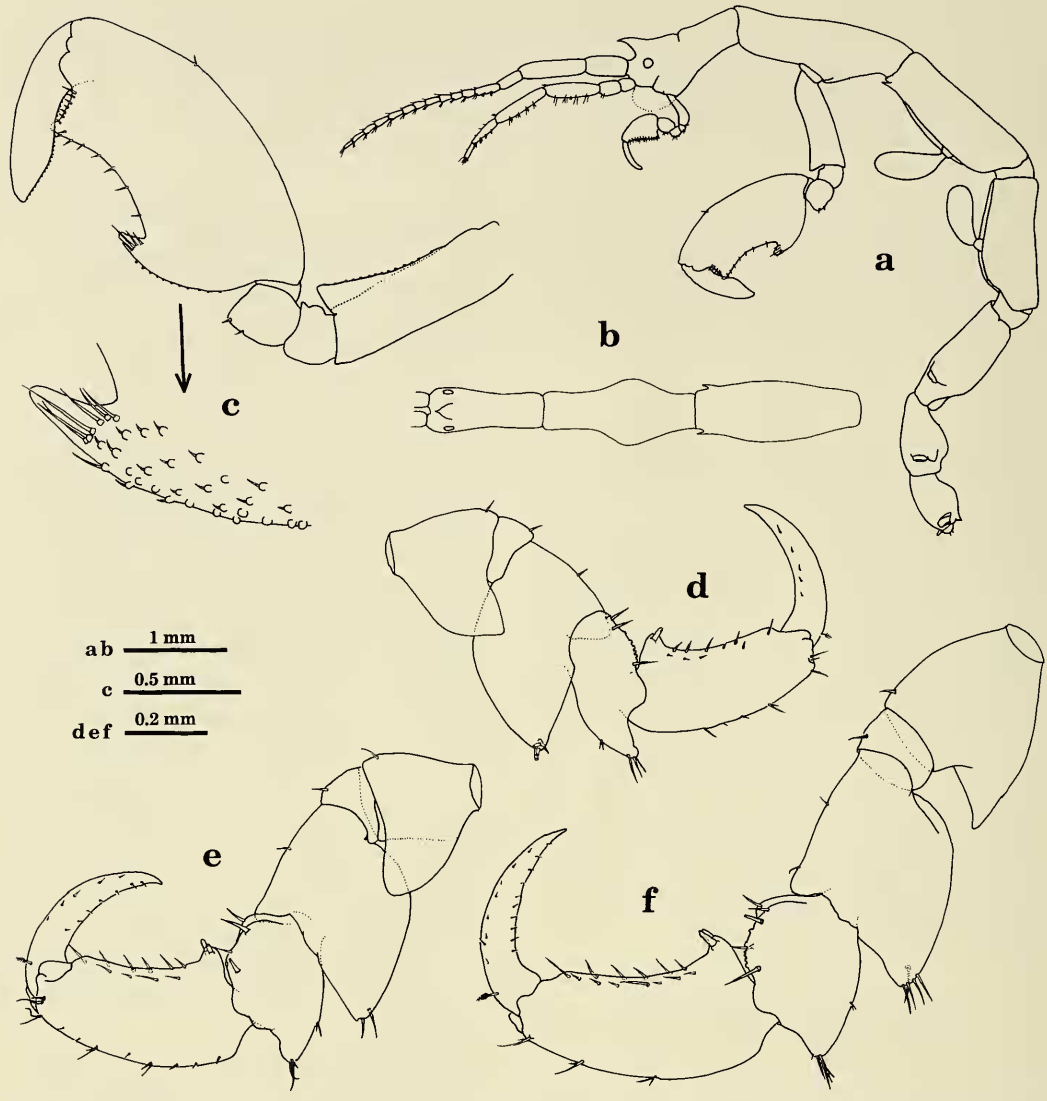

Fig. 1. *Caprella glabra,* new species, holotype male: a, lateral view; b, dorsal view of pereonites 1–3; c, left gnathopod 2; d, right pereopod 5; e, left pereopod 6; f, left pereopod 7.

Gills elliptical.

Pereopods 5, 6 and 7 increasing in length posteriorly; grasping margins of dactylus and propodus carinate and smooth, with few short setae; palm of propodus slightly concave, with high triangular proximal projection; margins of basis and merus posterolaterally expanded to form triangular plates with smooth margins. Pereopod 5 with proximal grasping spine on palmar lateral margin; pereopods 6 and 7 with paired grasping spines.

Abdomen typical of genus, with pair of unsegmented appendages and pair of setose lobes; penes medial.

Female: Maximum body length, 7.0 mm. Gnathopod 2 arising from anterior of pereonite 2, and surface not granular; palm of

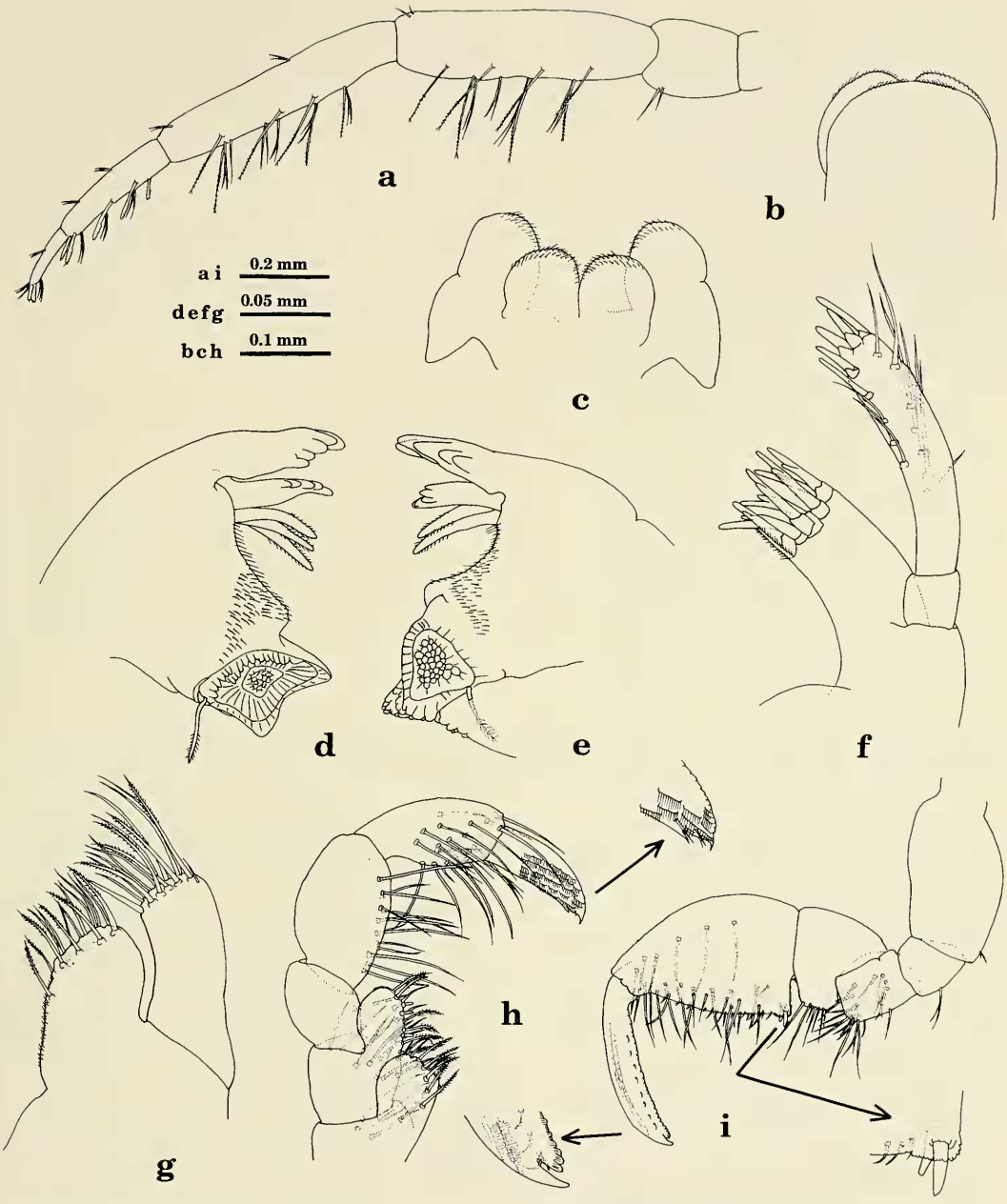

Fig. 2. *Caprella glabra,* new species, holotype male: a, left antenna 2; b, upper lip; c, lower lip; d, left mandible; e, right mandible; f, maxilla 1; g, maxilla 2; h, maxilliped; i, gnathopod 1.

propodus with 3 processes, proximal one triangular with single grasping spine mesial to margin, medial one spiniform, occasionally triangular, distal one spiniform.

Etymology.—From the Latin *glaber* (smooth or hairless) referring to the barely setose, smooth body.

Systematics.—*Caprella glabra* apparent-

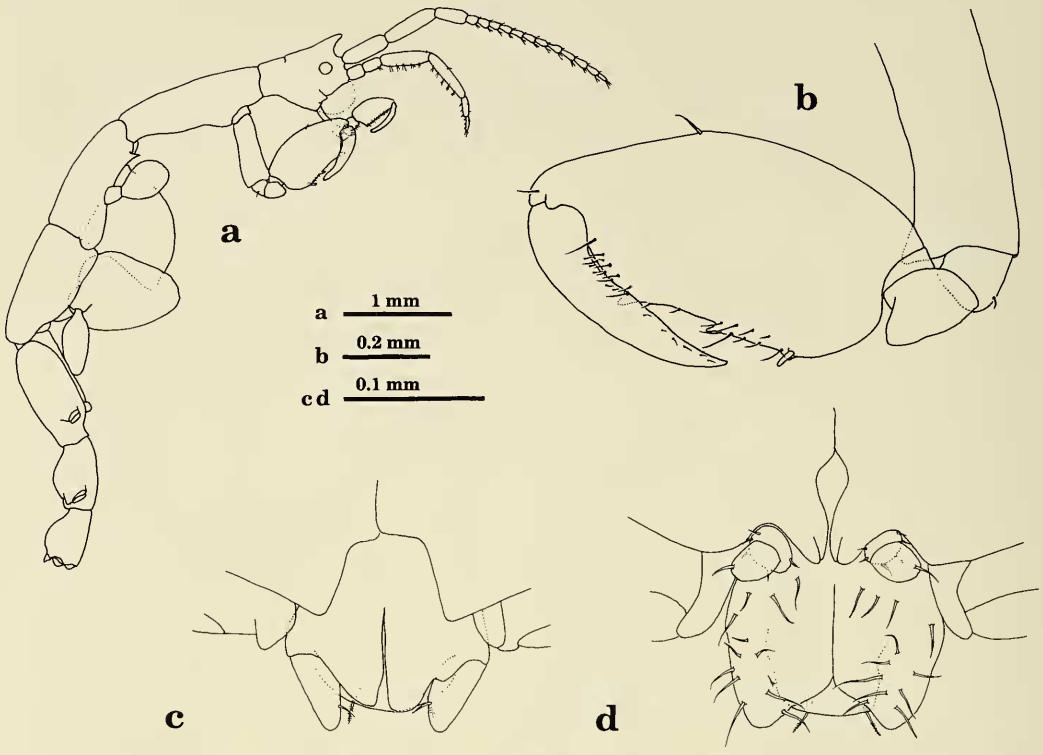

Fig. 3. *Caprella glabra,* new species: a, b, allotype female; c, paratype female (NSMT-Cr 10176D); d, paratype male (NSMT-Cr 10176B). a, lateral view; b, right gnathopod 2; c, female abdomen; d, male abdomen.

ly belongs to the *C. acutifrons* group (Mayer 1890, 1903), which is characterized by an anteriorly directed triangular rostrum-like projection on the head. The taxonomic status of the species within the *C. acutifrons* group has been discussed (McCain 1968, Laubitz 1972). The body that is slender, smooth, shiny and barely setose, the pereonites 2–4 that have no distinct pleura, and the gnathopod 2 that has the palm barely setose with a distal triangular process and a large proximal "poison tooth" (McCain 1968), links the new species strongly to the form *natalensis,* one of the 20 varieties (forms) proposed by Mayer (1890, 1903). The form *natalensis* is given a specific status as *Caprella natalensis* by Laubitz (1972). However, the pair of sharp anterolateral processes on the pereonite 3, the basis of gnathopod 2 which is proportionally longer than in other forms, and the sparsely setose antenna 2 differentiate *C. glabra* from the form *natalensis* as well as from other forms in the group.

Ecology.—Caprella penantis, a close relative of *Caprella glabra,* is taken on many substrata, e.g., red and brown algae, seagrasses, sponges, hydroids, bryozoans, gorgonians, etc. (see McCain 1968, Bynum 1980). On the other hand, *C. glabra* was collected only from *Thecocarpus niger* and *Aglaophenia whiteleggei,* erect branching hydroids (identified by I. Isasi). Some caprellids with specific habitat preferences exhibit morphological adaptations to their substrata in their pereopods (Caine 1978, Vader 1983, Aoki & Kikuchi 1990). There are various modes by which caprellids hold the substratum: holding thick rod between two pereopods, encircling middle-sized rod with the propodus and dactylus of a pereopod, grasping thin rod with tightly closed

propodus and dactylus, clutching flat surface with widely opened propodus and dactylus, and anchoring dactylus in soft substratum (Wetzel 1932, Caine 1978). The characteristic pereopods 5–7 of *C. glabra* appear to be well adapted to grasp thin branches of hydroids. The high proximal palmar defining projection of the species changes the shape of the foot by increasing the concavity of the palmar surface, which presumably enhances the grasping capability.

Most of the known species of *Caprella* have the antenna 2 with dense swimming setae, and the species in the genus which have been studied feed primarily by filtering or by scraping (Caine 1974, 1977, 1979). The sparse short swimming setae of *C. glabra* suggest that filtering is unlikely and the primary mode of feeding must be different from that of most species in the genus *Caprella.*

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